

**Notice of Allowability**

Application No.

10/591,076

Examiner

Shouxiang Hu

Applicant(s)

KUSUNOKI, KATSUKI

Art Unit

2811

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the 12-30-2009 amendment.
2. ☒ The allowed claim(s) is/are 1,3,4,6,7,18 and 19.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 20100310.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_.

### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment (except the title) was given in a telephone interview with Thomas M. Hunter (RN: 64,676) on March 10, 2010.

The application has been amended as follows:

#### IN THE TITLE

COMPOUND SEMICONDUCTOR LIGHT-EMITTING DEVICE ~~AND~~  
PRODUCTION METHOD THEREOF

#### IN THE CLAIMS

1. (currently amended) A compound semiconductor light-emitting device comprising:

a substrate having an upper surface, a lower surface, and a plurality of device side surfaces; and

a light-emitting layer ~~provided~~ grown on the upper surface of said substrate, wherein at least ~~a part of a substrate portion of one of~~ the device side surfaces has an array of recessed portions, ~~inwardly extended in a side direction of the device~~

~~perpendicular to~~ individual ones of the recessed portions extend from the lower surface  
to the upper surface of the substrate, and individual ones of the recessed portions have  
a semi-circular shape in cross section parallel to the upper surface of the substrate, and  
wherein the depth of individual ones of the recessed portions is a radius of the  
semi-circular shape in a direction parallel to the upper surface of the substrate, and the  
height of individual ones of the recessed portions from the lower surface to the upper  
surface of the substrate is at least 20 um ~~in the side direction of the device~~  
~~perpendicular to the upper surface of the surface of the substrate~~, and wherein a  
distance of 4 to 40 um is maintained between ~~the adjacent recessed portions~~ in the  
array of the recessed portions.

2. (Currently Canceled).
3. (original) A light-emitting device according to claim 1, wherein the light-emitting layer comprises an n-type or p-type compound semiconductor and is of the pn junction type.
4. (original) A light-emitting device according to claim 1, wherein the substrate is selected from the group consisting of a sapphire, a SiC and a III-V Group compound semiconductor single crystal.
5. (canceled).

6. (Currently Amended) A light-emitting device according to claim 1, wherein ~~individual ones~~ the depth of individual ones of the recessed portions ~~have a depth of is~~ about 0.5 to 10  $\mu$ m and a width of 1 to 20  $\mu$ m.
7. (original) A light-emitting device according to claim 1, wherein the compound semiconductor light-emitting device is of the flip-chip type.
- 8-17. (canceled).
18. (original) A lamp comprising a compound semiconductor light-emitting device of claim 1.
19. (original) A source of light comprising a lamp of claim 18.

***Allowable Subject Matter***

Claims 1, 3, 4, 6, 7, 18 and 19 are allowed.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-

1654. The examiner can normally be reached on Monday through Friday, 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Gurley can be reached on 571-272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shouxiang Hu/  
Primary Examiner, Art Unit 2811